Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Original). A method for the linearization of frequency-modulated continuous wave (FMCW) radar devices having a non-linear, ramp shaped, modulated transmitter frequency progression x(t) comprising the steps of:

correcting a phase term on a receiver side of a FMCW radar device said correction for compensating a phase error in a reception signal q(t).

Claim 2 (Currently Amended). The method as in claim 1, wherein said step for correcting a phase term comprises the following steps:

selecting a number (L) of consecutive ramp-shaped reception sequences $q_k(n)$ of the reception signal, wherein said number can be predetermined with k=1,...,L;

representing a set of phases $\arg\{q_k(n)\}$ which can be represented as a polynomial of an N^{th} order for a time index n, with a polynomial coefficient m_ℓ, with $\ell=1,...,N,$;

transforming a spectrum range $Q(e^{j\Omega})$ of the selected reception sequences q(n) into ~~a basic~~ the base band that can be predetermined, wherein a set of ~~basic~~ base band reception sequences $\hat{q}_k(n)$ with k=0,…,L-1 are generated in each instance;

iteratively calculating a correction phase term for partial compensation of non-linear frequency components in said ~~basic~~ base band of reception sequences $\hat{q}_k(n)$ by calculating a set of polynomial coefficients $\tilde{m}^{(i)}_{\ell,k}$ of the individual ~~basic~~ base band reception sequences $\hat{q}_k(n)$ via estimation methods, wherein $\hat{q}_k(n)$ are the sequences that have already been iteratively phase corrected, wherein said iteration is stopped once a parameter change between two consecutive iterations, which can be predetermined, remains below a threshold ε which can be predetermined.

Claim 3 (Original). The method as in claim 2, wherein said step of calculating polynomial coefficients, includes using said formula $\tilde{m}_{\ell,k}^{(i)}$ which includes estimating a distance $\tilde{R}_k^{(i)}$ between a radar device emitting a transmission signal x(t) and an object reflecting a transmission signal x(t).

Claim 4 (Currently Amended). The method as in claim 2, wherein said step of iteratively calculating a correlation phase term comprises the steps of:

calculating an individual discrete Fourier transformation $\hat{Q}_k^{(i)}(\mu)$ of the ~~basic~~ base band reception sequences $\hat{q}_k^{(i)}(n)$ whereby $\hat{Q}_k^{(i)}(u) = FFT\{\hat{q}_k^{(i)}(n)\}$ for k=1,…,L

calculating filtered ~~basic~~ base band reception sequences $\overline{q}_k^{i}(\mu)$ by means of a band pass filter according to $\overline{Q}_k^{(i)}(\mu) = w(\mu)\hat{Q}_k^{(i)}(\mu)$ wherein w(μ) is a spectrum window that can be predetermined and indicates a range of a spectrum window having a μ_{max} that can be predetermined wherein $\mu \in [\mu_\mu, \mu_l]$

with a low limit μ_u that can be predetermined and an upper limit μ_l that can be predetermined;

calculating an individual inverse Fourier transformation $\overline{q}_k^{(i)}(n)$ of a filtered ~~basic~~ base band reception sequence $\overline{Q}_k^{(i)}(\mu)$ wherein $\overline{q}_k^{(i)}n = IFFT\{\overline{Q}_k^{(i)}(\mu)\}$ for k=1,...., L;

estimating at least one distance $\widetilde{R}_k^{(i)}$ by means of a maximum likelihood estimation method;

calculating a polynomial coefficient $\widetilde{m}_{\ell,k}^{(i)}$ from the estimated distances $\widetilde{R}_k^{(i)}$;

averaging of said polynomial coefficient $\widetilde{m}_{\ell,k}^{(i)}$ with ℓ=1,..., N over L reception sequences $\hat{q}_k$ with k=1,..., L;

averaging a set of distances $\overline{R}_k^{(i)}$ over L reception sequences $\hat{q}_k(n)$;

calculating the reception sequences $\hat{q}_k^{(i+1)}$ (n) with the averaged, estimated polynomial coefficients $\widetilde{m}_\ell^{(i)}$ as the starting point for the next iteration.

Claim 5 (Original). The method as in claim 1, wherein said iteration step is stopped upon reaching a predetermined number of iteration steps.

Claim 6 (Original). The method as in claim 4, wherein said iteration step is stopped if a condition $\left|R^{(i-1)} - R^{(i)}\right| < \varepsilon$ is reached with ε being a threshold that can be predetermined.

Claim 7 (Original). The method as in claim 6, further comprising the step of calculating a set of final estimate values $\widetilde{R},\widetilde{m}_\ell$ via the following formula

$$\widetilde{R} = R^{(i)}; \widetilde{m}_\ell = \frac{1}{\widetilde{R}^{(i)}} \sum_{i=1}^{I} \widetilde{R}^{(i)} \widetilde{m}_\ell^{(i)}$$

Claim 8 (Original). The method as in claim 5, wherein said spectrum window is a rectangular window or a Hamming window.

Claim 9 (Original). The method as in claim 5, wherein a position of a center point μ_{max} of a spectrum window corresponds to a maximum amount of FFT $\left|\hat{Q}_k^{(i)}(\mu)\right|$ generated by averaging of an amount FFT of a basic band reception sequence $\left|\hat{Q}^{(i)}(\mu_{\max})\right|$ over a number L.

Claim 10 (Original). The method as in claim 1, wherein said reception signal is mixed with said transmission frequency into a lower frequency position that can be predetermined.

Claim 11 (Currently Amended). The method as in claim 1, wherein after said step of basic band transformation, the method further comprises the step of reducing a scanning cycle T_A of a ramp signal $q_k(n)$, wherein the ramp signals $q_k(n)$ are filtered by means of an ~~Antialias~~ antialiasing low-pass.

Claim 12 (Currently Amended). The method as in claim 11, wherein said downsampling factor K, ~~reduced by scanning cycle T_A,~~ lies between K=30 and K=60.

Claim 13 (Original). The method as in claim 5, wherein said number of iterations can be predetermined, between 10 and 20 iterations.